

**Notice of Allowability**

Application No.

10/820,367

Applicant(s)

GEFFEN ET AL.

Examiner

Art Unit

Vincent P. Barth

2877

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment dated 7 Mar. 2005.
2. ☒ The allowed claim(s) is/are 10-18.
3. ☒ The drawings filed on 07 April 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

## **DETAILED ACTION**

### ***Preliminary Comments***

1. Applicants' Amendments dated 7 March 2005 have placed the Application in a condition for allowance as written. Accordingly, the following represents a reasoned statement for allowability.

### ***Allowable Subject Matter***

2. Claims 10-18 are allowable, since the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations set forth therein.

3. Referring to Claim 10, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby a confocal chromatic wafer inspection system comprises a confocal chromatic height measurement element for measuring a range to a point on a surface of the wafer so as to enable recognition of changes in surface height of the wafer while the wafer moves with the table, and a computer for storing bumps maps of the wafer, storing the height profile of each bump, and comparing the height profile of each bump with profiles of other bumps, in combination with the remaining limitations in the claim. Claims 11-17 are allowable based on their dependency upon the claim from which each is dependent. Referring to Claim 18, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby a method for confocal chromatic wafer inspection comprises obtaining a digital image of the wafer by photographing all of the wafer, scanning on of sectors of the wafers and lines to compose the digital image of the wafer,

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mapping locations of bumps on the wafer by recognizing bumps in the digital image of the wafer based on predetermined criteria, planning a bumps track that crosses each of the bumps, using a confocal chromatic height measurement element for measuring changes in height along the bumps track, obtaining a height profile of each of the bumps based on the measured changes in height, comparing the height profile of each bump with profiles of other bumps, in combination with the remaining limitations in the claim.

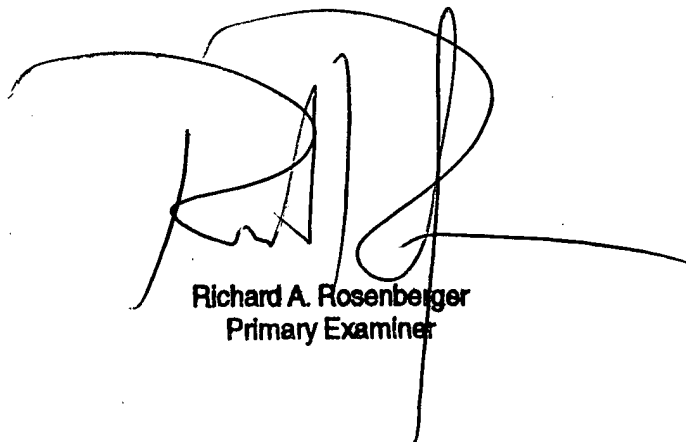
#### *Comments*

4. Applicants have cancelled Claims 1-9, thus rendering the §112 rejections set forth in the previous Office Action moot. Moreover, the language which had caused such rejections in the previous Claims 1-9 has been modified with appropriate clarity in new Claims 11-18, thus obviating any new rejections pursuant to §112.

5. Applicants have noted in the Remarks dated 7 March 2005 that the instant invention is based on a confocal chromatic height measurement element, in which white light is irradiated from a light source and each color is focused on a different point (Remarks pg. 7, first full paragraph and second paragraph). In this connection, Applicants have cited to the portion of the instant Specification in which the limitation of a confocal chromatic element is set forth, namely by reference to Gaillard-Groleas FR 2716727 (1 Sept. 1995) and Cohen FR 2738343 (7 Mar. 1997). Accordingly, the Worster reference which formed the basis of the previous Office Action is withdrawn, since said reference does not disclose a confocal chromatic height measuring system, as well as the other limitations presented in the instant claims.

**CONCLUSION**

6. Applicants' Claims 10-18 are allowed based on the reasons set forth above.
7. Applicants have cancelled Claims 1-9.
8. Any inquiries concerning this communication from the Examiner should be directed to Vincent P. Barth, whose telephone number is 571-272-2410, and who may be ordinarily reached from 9:00 a.m. to 5:30 p.m., Monday through Friday. The official fax number for communications to the group is 703-872-9306.
9. If attempts to reach the Examiner prove unsuccessful, the Examiner's supervisor is Gregory J. Toatley, Jr., who may be reached at 571-272-2800, ext. 77.
10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Richard A. Rosenberger  
Primary Examiner